STORMS AND WEATHER WARNINGS

WASHINGTON FORECAST DISTRICT

The tropical cyclone that passed over the Florida Peninsula during the night of November 30–December 1 originated over the northwestern Caribbean Sea and was central a short distance east or southeast of Swan Island at 8 a. m., November 29. It was of slight intensity at this time, but increased rapidly in intensity after passing through the Yucatan Channel during the following night, and by 8 p. m. of the 30th the barometer at Key West, Fla., had fallen to 29.62 inches and the wind had shifted to southwest. The S. S. *El Isleo*, which was some distance northwest of Key West in latitude 25° 18′ N. and longitude 84° 0′ W., reported a barometer reading of 29.60 inches and wind force 10 (whole gale) from the northwest.

During the night of November 30 the center of the storm passed inland south of Tampa. At Tampa the barometer fell to 29.50 inches and the wind reached a maximum velocity of 52 miles from the northeast about 1 a. m. of December 1. At 8 a. m. of December 1 the storm was centered a short distance east of Titusville, and the pressure at the center was somewhat under 29.50 inches. Jacksonville reported a maximum wind velocity of 48 miles from the north. Vessel reports from near the center at noon showed that the storm had attained hurricane intensity. The S. S. *R. W. Stewart* in latitude 29° 40′ N., and longitude 79° 10′ W., reported a barometer reading of 29.30 inches, with a whole gale blowing from the northeast, accompanied by mountainous seas. The S. S. *El Estero*, less than 100 miles to the south-southwest, reported a barometer reading of 29.34 inches and a wind force of 12 (hurricane) from the west. No 8 p. m. vessel reports were received from the vicinity of the hurricane center, which was apparently about 150 miles due east of Savannah, Ga., at that time. The wind had increased to 42 miles an hour at both Savannah and Charleston, but it was only 24 miles an hour at Hatteras. Northeast storm warnings had been ordered displayed from Punta Gorda to Jacksonville, Fla., during the afternoon of November 30 and north of Jacksonville to Boston, Mass., at 9:30 a. m. of December 1. It was stated in the hoist messages of the 1st that the storm would increase in intensity and likely become severe. At 9:30 p. m. of the 1st, whole-gale warnings were ordered displayed from Beaufort, N. C., to the Virginia Capes, and northeast storm warnings were extended north of Boston to Eastport, Me.

At 8 a. m. of the 2d the hurricane was central about 100 miles south-southeast of Wilmington, N. C., the U. S. S. *Patoka* reporting a barometer reading of 28.90 inches with wind force 9 (strong gale) from the east. The storm center passed inland between Wilmington and Cape Hatteras at about 6 p. m., and out to sea again a short distance south of Cape Henry during the night. The northeastward progress of the storm was slowed up and it was deflected toward the east by a strong area of high pressure that had remained almost stationary for several days over the Canadian Maritime Provinces. The storm apparently lost considerable of its intensity as it moved slowly eastward, its center crossing the meridian of Bermuda, but several hundred miles to the north of that island, during the afternoon or night of the 4th.

The subsequent movement of this storm eastward over the ocean was shown by the receipt of wireless reports from the S. S. *American Legion* the morning of the 5th and from the S. S. *Polybius* the evening of the same day. These observations were valuable for the purpose of tracing the movement of this storm, especially as these vessels were in a part of the ocean from which wireless reports are seldom received. Falling pressure and increasing northeast winds at Horta, Azores, during the night of December 7–8 indicated the approach of the storm, and its center passed close to Horta at 4 a. m. of the 9th, with a barometer reading of 29.32 inches and a maximum wind velocity of 40 miles an hour from the northeast. After passing to the northeast of the Azores, this storm apparently merged with another disturbance of wide extent over the North Atlantic.

A very complete report on the damage caused by this storm as it passed over the Florida Peninsula has been prepared by the section director at Jacksonville. The following are extracts from this report:

> As a result of the southwest-northeast movement of the storm over the peninsula most of the section east of the Suwannee River felt its force to some extent, chiefly, however, over the peninsula, where trees were uprooted and telephone and telegraph wires were prostrated. Fruit was blown from the trees and much was "thorned"; lowlands were flooded; and, incidentally, much truck was lost. Structures in process of completion suffered considerably; dredges were sunk and many small boats were damaged or sunk at anchor. As a result of the phenomenally high tides and seas damage to beaches and beach property from the mouth of the St. Johns southward was very great—only in millions can the computation be made. In some cases the inroads of the sea exceeded 100 feet. Pavilions, small cottages, and even pretentious structures were undermined, and hotels, whose safety hitherto had never been questioned, were in imminent danger. The extent of the damage from this source is indicated by the fact that $1,000,000 will be required to replace the Jacksonville beaches as they were formerly. There have been higher winds on the coast, and the explanation of the great damage to the Atlantic beaches and beach property is found in the persistence of, and the relatively high, northeast winds, which began at Jacksonville about noon of the 28th and continued until 1 a. m., December 1. The maximum velocity at Jacksonville was 52 miles an hour, setting in with 25 miles on the 28th, 38 miles on the 29th, 34 miles on the 30th, and 52 miles on December 1. The velocities were considerably higher on the coast, from which Jacksonville is distant 17 miles.
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> Enumeration of marine and other losses is necessarily incomplete, but they were quite severe, due, largely, to the fact that shipping throws caution to the winds, as it were, after the last of October, resting under the Utopian belief that the end of that month marks the close of tropical cyclone activity in these latitudes. Aside from the physical losses there was the more melancholy one—loss of life.
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> *Damage to truck.*—This was severe, on account of heavy rain, in the southeast the damage being centered chiefly in the Miami district; losses were not heavy in the Everglades, where the rainfall was much less. Truck suffered severely, also, along the track of the storm as it moved northeastward over the peninsula.
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> *Damage to fruit.*—The Citrus Exchange estimated the loss at 300,000 boxes, which, at $2 per box, evidences a formidable sum.
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> There were very many other losses that can not be enumerated, but in the aggregate they show that the storm approximated the usual disturbance of that character in paralyzing business and damaging marine interests.
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> The losses of shipping were quite severe, as follows: The American schooner *Arcadia* was sunk; crew of 7 lost. The tug *Gwalia*, towing lumber barge from Mobile, went down. The crew was adrift on the barge; not known if rescued. The American schooner, *William Russell* sank off Fort Lauderdale; crew rescued. The American S. S. *Catopaxi*, Charleston to Cuba, crew of 30, was lost off the southeast coast. A "rum-runner" from Nassau was lost off Daytona Beach; crew of 6 was lost with 2,000 cases of liquor. The pleasure yacht *Miramar*, New York to Miami, was caught in the storm between Charleston and Savannah, December 1; it went down with the crew of 12.

The hurricane described above was only the third tropical storm of known hurricane intensity that developed after November 1 in the North Atlantic Ocean (including the Caribbean Sea and the Gulf of Mexico) since 1886. The first was that of November 17–29, 1888, which caused very severe damage to shipping from Cape Hatteras to Eastport, Me., and the second was the hurricane that devastated the western part of the

island of Jamaica during November 17–18, 1912. The last one is the latest hurricane of record in the North Atlantic during any year since more or less complete vessel reports became available in 1886. Its center passed the Virginia capes early on December 3, which is just a week later in the year than the hurricane of November, 1888, its center passing east of the Virginia capes on November 26. The last named was more severe, however, as it moved northeastward off the coast, and it caused great damage. The December, 1925, hurricane did not cause any great amount of damage, except over the Florida Peninsula; and, furthermore, it decreased in intensity after reaching the North Carolina coast. The highest wind velocity reported from any land station was 64 miles an hour from the northeast at Atlantic City, N. J. Cape Henry, Va., and Block Island, R. I., reported 60 miles an hour from the same direction.

Storm warnings were issued for portions of the Atlantic coast on the 5th, 8th, 9th, 12th, 19th, 22d, 25th, and 27th, and they were verified, as a rule. Velocities in excess of 50 miles an hour were reported from at least one station in connection with four of the storms for which warnings were issued.

Small-craft warnings were issued for limited sections of the Atlantic or east Gulf coasts on the 5th, 13th, 19th, 21st, and 28th. Warnings of northers were sent to the chief hydrographer, Cristobal, Panama Canal Zone, on the 22d and 28th.

No cold-wave warnings were issued until the 22d, when they were ordered for South Carolina, Georgia, extreme eastern Tennessee, extreme western North Carolina, and extreme northern Florida. The severe cold spell of the last week of the month came on rather gradually over parts of the Washington district, but cold-wave warnings were issued the evening of the 26th for Mississippi, Alabama, western Tennessee, and extreme northwestern Florida. The temperature fell to 2° at Anniston, Ala., 18° at Mobile, Ala., and Pensacola, Fla., 12° at Macon, Ga., and 24° at Jacksonville, Fla. At Tampa, Fla., the lowest was 34°.

Frost warnings were issued for portions of the extreme south on 16 dates during the month. On 5 dates warnings were issued for central Florida, the most important of which were those of the 22d and 23d.—*C. L. Mitchell.*

CHICAGO FORECAST DISTRICT

Storm warnings.—Three disturbances that attained storm force more or less generally on the Great Lakes occurred before the closing of the storm warning season on the 15th.

On the morning of the 3d a trough of low pressure covered the Great Plains, with the principal center over southeastern Kansas, and a secondary over northwestern Minnesota. The whole disturbance advanced slowly eastward for about 24 hours, following which it recurved and began to move slowly north-northeastward. After the center reached Lake Michigan the intensity began to diminish. Upon reaching Lake Superior the direction of movement again changed, and an east-northeastward path was taken. General and timely storm warnings were issued for this storm, and in most cases either verifying or near verifying velocities were attained at the regular stations on the Lakes.

On the 8th rather general storm warnings were again issued in connection with a disturbance that had advanced rapidly from the northwest, and with a marked increase in energy as it reached Lake Superior. The storm continued its rapid progress, reaching the mouth of the St. Lawrence River on the morning of the 19th with a still further increase in intensity. On the Great Lakes winds were almost generally of storm force in connection with this disturbance. At Buffalo, N. Y., 66 miles was attained.

The third and final disturbance of the storm warning season prevailed from the 11th to the 14th, inclusive. This storm also advanced to the Great Lakes from the northwest, reaching Lake Superior on the night of the 10th–11th. Thereupon, the storm divided, one portion moving rapidly eastward and the other following in its rear at a slower rate. The warnings issued in this connection were quite general in their scope and were fully justified, verifying velocities occurring at most stations. At Buffalo, N. Y., a maximum velocity of 70 miles an hour was reached.

After the close of the regular storm warning season each year advisory warnings are issued for Lake Michigan whenever the conditions seem to justify. Three warnings of this character were issued for the current month. The warning of the 23d was followed by storm winds and moderate gales on the southern portion of the Lake, but in the other two instances the wind fell short of storm strength.

Cold waves.—A few local cold waves occurred from time to time during the month, but there was no widespread cold wave until the last week when a marked change to colder weather was experienced generally. Cold waves occurred at this time in most of the southern and western portions of the district. The low temperatures were unusually persistent, and it was not until the last day of the month that normal temperatures were again reached in most sections. The attendant high-pressure area was of great magnitude and appeared to have its origin in the region east of Alaska. At Miles City, Mont., the reduced barometer on the morning of the 27th was 31.22 inches.

The only cold wave warnings issued during the month were those on the 8th for northern Minnesota, and on the 26th and 27th for Wyoming and most of Montana.

Stock warnings.—Warnings for the benefit of livestock were disseminated on the 19th for Nebraska and western Kansas. The ensuing conditions were as forecast.

Change in forecast district.—The States of Montana and Wyoming were transferred from the Chicago to the Denver forecast district, effective January 1, 1926. On and after that date all weather forecasts and warnings for these States will be issued from Denver, Colo.—*C. A. Donnel.*

NEW ORLEANS FORECAST DISTRICT

Anticyclonic conditions were dominant in this district during the greater part of the month, with average temperature considerably below normal and comparatively dry weather, except for precipitation above normal on the west coast of Texas. A cold rain, mixed occasionally with small amounts of sleet and snow, fell on the Texas coast during the last five days, with temperatures of freezing or lower for a considerable part of this period.

Small-craft warnings were displayed on the Texas coast on the 3d and on the Louisiana coast and east coast of Texas on the 4th, because of an interior disturbance. While the disturbance was passing eastward a wind velocity of 44 miles an hour occurred at Galveston, Tex., in the early morning of the 4th. Small craft warnings were displayed also on the 13th and 14th on the Texas coast, being changed to northwest storm warnings at 8:30 p. m. of the 14th. These warnings were justified.